Testimony Of

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A123Systems Role In The Coming Hybrid And Plug In Hybrid Revolution

A123SYSTEMS' ROLE IN THE COMING HYBRID AND

PLUG IN HYBRID REVOLUTION

Mr. Chairman, Senator Thomas and Members of the Subcommittee;

Knowing of your and the Committee's interest in fostering new American technologies in the critical effort to slow down climate change and reduce our dependence on foreign oil, I thank you for the opportunity to appear before you today to explain and answer questions about A123Systems' progress in developing what we and others believe is the state-of-the-art lithium ion battery that will help enable this nation to lead a worldwide plug-in hybrid transportation revolution starting now.

Let me explain.

The Company And Its Products

A123Systems started 5 years ago as an MIT spin off with a $100,000 DOE SBIR grant. Today it has raised over $100 million, has over 300 employees and operates facilities in Watertown, Massachusetts and Ann Arbor, Michigan. We sell millions of batteries annually to Black and Decker, Dewalt and others for high powered handheld applications. We also are developing higher powered solutions for the aerospace and defense industries and have been chosen by GM, and other major American and European automakers, to help develop and power their hybrid and plug-in hybrid sedans,

SUVs, trucks, buses and heavy equipment moving vehicles which will be coming on line over the next 3 to 5 years.

This has all been made possible by our development of a unique Nanophoshate based lithium ion battery with a combination of power density, durability and safety in excess of anything mass produced on the market today. This assertion is confirmed by the ever growing list of partners who are choosing A123Systems as the power source of choice in enabling them to enter the increasingly attractive and profitable hybrid era.

The automotive industry is in the middle of a critical transition to electric drive. Fueled by strong consumer demand for greener vehicles and a growing awareness of our greater responsibilities to our planet and our national security, there are now over 65 hybrid vehicle launches planned by 2010. We are working with leading American and European automakers to develop batteries for upcoming hybrids and are working with the DOE and the USABC to optimize our technology and provide leading price performance in this market.

The next generation of technology beyond the conventional hybrid is the plug-in hybrid. This game changing technology is one where the US automakers have established technological leadership and which delivers many benefits including 100 MPG or greater efficiencies at a fraction of the cost of gasoline. A123Systems is a leading supplier of battery technology for plug-in hybrids. We are working with General Motors and other

leading American and European automobile and heavy equipment manufacturers to validate and introduce this technology into the market.

In fact, this week A123Systems and BAE Systems will be announcing that, starting in 2008, BAE Systems will be offering A123's lithium ion battery technology as part of its HybriDrive® Propulsion System used in hybrid busses. The HybriDrive® Propulsion System is currently in use in New York City, Toronto, and San Francisco.

From passenger vehicles to large trucks and busses to fleet vehicles, these new technologies, enabled in part because of the performance metrics of A123Systems batteries, can change both the emissions and fuel consumption profiles of some of our largest concentrations of polluting commerce.

Over the years, this Committee has been in the forefront of recognizing the need to nurture these kinds of breakthrough technologies by insuring early stimulation through the wise use of tax credits to kick start consumer demand. Putting the CLEAR ACT in place in 2005 was critical to both educating the public and producing the sale volumes that have lead to ever improving costs and economics. As a result, today's growing demand for hybrid vehicles is a tribute to the public's underestimated desire to do something about the health and national security risks of ever rising petroleum dependency when presented with economic choices.

Clearly the number one message I want to leave you with today is that since we now know it made sense to provide several thousands of dollars in tax credits to start moving consumers from 15 MPG vehicles to 45 MPG vehicles, it certainly makes sense to do at least as much to achieve the 80% oil savings and 50% emissions reductions which will come with each comfortable, high performance plug-in hybrid vehicle designed to achieve 100 MPG or more.

And the sooner we do that, the cleaner and safer this country will be. Which is why A123Systems has strategized on how to best to move along the continuum from producing millions of high performance A123Systems lithium ion batteries for handheld applications to adding the bandwidth required in 3 to 5 years to supply the major manufacturers with batteries for their fully designed and tested original equipment plug-in hybrid vehicles.

So we asked ourselves how best to fill that gap in the most supportive way to maximize the earliest and ultimate success of the tens of millions of original equipment plug-in hybrids that will need to be rolling off the major manufacturers production lines through the next decade. The answer was to team with Hymotion, a leader in the field of companies utilizing our batteries in Battery Range Extender Modules that can be installed in the spare tire well of any existing hybrid.

The result of that effort is parked right outside this building. On its face, it is one of the almost 1 million standard production hybrids now on the road in the US. Its original

equipment nickel metal hydride battery provides enough power to go about one to two miles on electricity alone. But this car differs from most of its brethren in that it also has a supplemental module small enough to fit into it's spare tire well. This module contains our current production battery cells and delivers enough usable energy for the vehicle to travel the equivalent of 40 miles on electricity, achieving as much as 150 MPG in urban driving and 100 MPG in highway driving. This module is charged overnight from a regular 120 volt extension cord which plugs into the bumper.

Since the average commuter travels under 30 miles per day, off peak nightly charging of this module both improves a utility's load factor and efficiencies while reducing total gasoline consumption and emissions dramatically. In fact, DOE's Argonne National Lab has tested an earlier version of this module providing independent validation of the 150 MPG urban efficiencies that plug-in hybrids provide. Prototypes now being driven around the country, including here in Washington, have been obtaining the same results which are several multiples of the 45 to 55 MPG today's production hybrids achieve.

Now let me be clear. Over 100 MPG from a standard production hybrid with a supplemental battery module filled with our current production lithium ion batteries sitting out on the street right now for anyone to drive. And yes, it is affordable, reliable and a logical bridge between the even more efficient OEM plug-ins that will become available in mass by the beginning of the next decade and the ever growing millions of conventional hybrids that will be sold in the interim. We will be testing this technology with various fleets in 2007 and now intend to market this standardized module

nationwide in 2008. It will be certified to meet all applicable new car test standards and will be installed by trained mechanics in less than 2 hours, without any changes to the underlying electronics, mechanics or materially useable space of the production hybrid other than the installation of the plug in the rear bumper.

The applicable market in the US for standard production hybrids will be approaching 1 million through the course of this year. With almost two dozen hybrid models expected by the end of 2008, there will be 5 million standard hybrids on the road by 2010. At an initial 40 mile module installed price of $10,000 supported with a $3500 tax credit, the payback period for a fleet owner with $3.00/gallon gas is 2.5 years, against an expected life of 10 or more years. The payback period for the average commuter driving 11,000 miles per year would be 5.5 years. These calculations place no value on the net reduction of approximately 100 tons of carbon dioxide and other emissions over the life of the vehicle and take no account of the cost reductions which could accrue from additional materials research and increasing production volumes.

I urge all of you to come look at the car and see what can be available to the American public starting later this year. With a modest tax credit, the average American can be in a full, responsive, comfortable sedan that can get over 100 MPG and cut net emissions by 50% for under $30,000. And as volumes increase, prices also can be expected to eventually fall as in any new breakthrough product.

Clearly the original equipment hybrids due out early in the next decade utilizing even better batteries integrated directly into the vehicle at the factory will be more efficient and less costly. But there can be as many as 15 million standard hybrids on the road when plug-in volumes skyrocket from 2012 to 2017. This A123Systems' technology can start today to stimulate the major oil and emission savings from the plug in equivalent of the first bulky cell phones and large laptop computers. In all these cases, it's much better than what was there before and not as good as it is going to get. But it can be an important part of a logical technology and policy continuum leading to an earlier 80% reduction in oil imports as we move to a dominantly plug-in hybrid national fleet.

So I would urge you to be sure that any tax incentive applicable to plug-in hybrid consumers of factory originals available some years out, also be applicable to the tested, standardized, nationally marketed through certified installers, plug-in modules offered earlier by qualified companies for the growing millions of regular hybrids that will be on our roads. We estimate a fivefold increase in demand for these modules from an increasingly responsive American public as a result of providing for this early responder tax credit. Kick starting this transportation revolution now, by moving up by years the availability of this breakthrough so important to our national security, will:

- Introduce a public hungry for tangible action now to a new American technology that lets them be part of the logical next step of a transportation revolution they have already started with their unprecedented demand for the standard hybrids available today.
- Gather invaluable experience and data for the next generation of factory produced vehicles through earlier wide spread use of these higher tech batteries in real volumes in the everyday world.
- Stimulate earlier battery cost reductions from the earlier volume sales
- Advance by years the much needed 80% reduction in oil consumption and 50% emissions savings associated with every plug in on the road.

- Serve the purpose of potentially speeding up the roll out of the all important factory produced plug ins as a result of the growing public awareness and response to module savings and availability.

Our folks have been working with your staff and others on the Committee and in the House to insure a workable mechanism and allocation for a standardized credit that provides for a seamless transition to the mass volumes of plug-in vehicles we will need to cut our oil imports and emissions. At the same time, we can begin to restore American leadership and jobs as a result of this technological breakthrough. We stand ready to provide you with anything else you may need to assess this request.

The Additional Importance Of a Truly Competitive Research And Job Creation Grant Program

I also would like to address the importance of translating the potentially massive resource requirement of a plug-in revolution driven by American battery technology advances into maximum advantage for American technological leadership and job creation. A123Systems has already created more American Li Ion related jobs in the past 5 years than any other American company. Having said that, I know you are aware that in many senses our major competition is as much foreign governments as it is domestic or foreign companies.

Mr. Chairman, no one has done more over the years to address the need for a better US policy to prevent the recurring story of American technologies being successfully commercialized elsewhere. We all know foreign governments provide subsidies through

investments and partnerships in the initial capital costs of research and manufacturing infrastructure that cannot be matched by investor owned US companies. You understand as well as anyone that in matters involving national security priorities like a restructuring of our energy consumption profile, we run the risk of losing our competitiveness again without finding an equitable way of leveling this playing field.

Let me provide you with a few insights into that question from our perspective in the battery industry. The 100 MPG or more car sitting outside that window today is proof positive that right now the US is in the lead on the development and marketing of the breakthrough required to make the massive oil savings associated with plug-in hybrids a reality, with the least amount of infrastructure change.

Currently, we plan to add further jobs in the US in the value added areas of materials research, battery engineering, module assembly and possibly pilot plant experimentation. But when it comes to actual mass production of Li Ion cells, we face an initial cost differential between the US and Asia that would make our products non-competitive. Without the kind of long term multi-billion dollar government support provided by countries like Japan and Korea to their battery company partners, A123Systems simply will not be competitive if these cell plants are built in the US, even with a substantial performance advantage.

Your and Senator Domenici's Energy Efficiency Promotion Act Of 2007 (SB1115) goes a long way toward starting to address these challenges with it's combination of grants,

expanded DOE demonstration programs, loan guarantees, and improved basic and applied research programs. From our perspective as a relatively small company with an increasingly recognized breakout technology, there are a few adjustments and clarifications we would like to point out to make the bill as competitive and effective as possible in keeping American leadership and jobs in America as the battery driven plug in boom takes off.

As written, the 30% grants for additional qualifying production facilities for automakers and component manufacturers in Section 303 applies only to expansion or renovation of existing facilities. Yet, the most important driver of this revolution – much better batteries – will only be built in the US at new plants that do not exist at this time, since the vast amount of lithium ion manufacturing capacity is already overseas as a result of the Asian government's superior support policies for this very industry.

It could be a mistake from our perspective to leave new battery plants in the US out of Section 303.

The grant portion of Section 203 is far more appealing to A123Systems than the loan guarantee provision. Debt on the books, even at a lower interest rate, tends to tip the scales for manufacturing to Asia given the massive capital cost differentials. The time and administrative risk of securing DOE grants can also be a factor in this fast moving new world of cascading negotiations and expanding new orders. Provisions encouraging

tight turn around time frames for decisions on the critical domestic applications for new plant construction grants in the US probably warrant consideration as well.

Finally, you have made a good start in the defined new industry research programs in Sections 305 and 304. To insure the true "Competitiveness" referenced in the title for "Energy Storage Systems" in Section 304, we think it is important to make clear that the designated industry wide R&D funding be done on a company by company basis as opposed to a pooled basis.

We want to see everyone encouraged to improve upon and beat everyone else in a fair and open competition. But if, as part of that process, industry wide funding involves industry wide sharing and publishing of data, smaller companies like A123Systems with leading technologies who most need the funding to keep the maximum number of jobs in the US, will not be inclined to sign up at the price of turning their advantage over to both their American and foreign competitors. The proprietary nature of each company's intellectual property should be preserved in the industry wide R&D program to push all participants to put forth their very best cutting edge efforts.

Conclusion

This nation can turn our current energy vulnerabilities into a new technological renaissance producing an increasing number of American jobs. We can do it by using a combination of demand pull tax incentives and grants to insure we shift our consumption

of foreign oil to a more efficient, diversified, balanced and cleaner domestic electric grid. With your political will and leadership, and the kind of technological breakthroughs represented by that 100 or more MPG car sitting outside powered by A123Systems cells developed here in Boston and at our subsidiary, T/J Technologies, in Ann Arbor, and being pursued diligently and prudently as part of a partnership with Detroit that holds the key to reestablishing their technological leadership and superiority, we will succeed.

Thank you Mr. Chairman and Members of the Committee for this opportunity to explain what we are doing and comment on what you propose. We appreciate your interest and support. We will now be glad to address any questions you may have on this or any other subject.